APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/622,147	10/30/2000	Mohammed Javed Absar	851663414USP	8294

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EXAMINER
FLANDERS, ANDREW C

ART UNIT	PAPER NUMBER
2644	

DATE MAILED: 03/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/622,147	ABSAR ET AL.
	Examiner	Art Unit	
	Andrew C Flanders	2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>30 October 2000</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-47</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-11,17-25,31-35 and 45-47</u> is/are rejected.

7)☒ Claim(s) <u>12-16, 26-30 and 36-44</u> is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>11 August 2000</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☒ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Oath/Declaration

The Notice of EO/DO mailed 13 November 2000 indicates an

Oath/Declaration was received by the office. However, the current file does not

include a copy of the Oath/Declaration. Examiner respectfully requests a copy of

the previously submitted Oath/Declaration.

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35

U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2.   Claims 1 – 6, 17 –20, 45 and 46 are rejected under 35 U.S.C. 102(b) as

being anticipated by ATSC.

3.   Regarding Claim 1, ATSC discloses for each audio channel, examining

the variation in exponents over frequency and time (i.e. determining a first

variation of exponent values within a first exponent set) and sending new

exponents when the variation exceeds a threshold (i.e. assigning an exponent

coding strategy to the first exponent set based on the determine first variation)

(section 8.2.8 page 103), differential coding in which the exponents for a channel

are differentially coded across frequency and successive exponents are sent as

differential values which must be added to the prior exponent value in order to form the next absolute value (i.e. determining a second variation of exponent values between said first exponent set and each subsequent exponent set in said sequence) and the differential exponents are combined into groups in the audio block and the grouping is done by one of three methods D15, D25 or D45 which are referred to as exponent strategies (section 7.1.1 page 45) (i.e. assigning an exponent coding strategy to the first exponent set based on the determined first and second variations).

4.   Regarding Claims 2 and 45, in addition to the elements stated above regarding claim 1, ATSC further discloses the differential exponents are combined into groups in the audio block and the grouping is done by one of three methods D15, D25 or D45 which are referred to as exponent strategies and the number of exponents in each group depends only on the exponent strategy (section 7.1.1 page 45) (i.e. wherein the exponent coding strategy is assigned from a plurality of exponent coding strategies having different differential coding limits).

5.   Regarding Claims 3, 17 and 46, in addition to the elements stated above regarding claim 2, ATSC discloses combining the differential exponents into groups done by three methods which are referred to as exponent strategies (section 7.1.1 page 45) (i.e. a step of coding said first exponent set according to the assigned exponent coding strategy).

6.   Regarding Claim 4, in addition to the elements stated above regarding claim 3, ATSC further discloses looking at the variation of exponents over time

and when the variation exceeds a threshold, new exponents will be sent (section 8.2.8 page 103).

7.   Regarding Claim 5, in addition to the elements stated above regarding claim 4, ATSC further discloses that if the spectrum changes little over the 6 blocks in a frame the exponents will be reused for blocks 1 –5 (section 8.28 page 103) (i.e. wherein the plurality of exponent coding strategies includes an exponent set re-use strategy that is assigned to the at least one subsequent exponent set).

8.   Regarding Claim 6, in addition to the elements stated above regarding claim 5, ATSC further discloses looking at the variation of exponents over time and when the variation exceeds a threshold, new exponents will be sent (section 8.2.8 page 103) (i.e. comprising a step of coding said first exponent set and said at least one subsequent exponent set according to the corresponding assigned coding strategies).

9.   Regarding Claim 18, in addition to the elements stated above regarding claim 17, ATSC further discloses the differential exponents are combined into groups in the audio block and the grouping is done by one of three methods D15, D25 or D45 which are referred to as exponent strategies and the number of exponents in each group depends only on the exponent strategy (section 7.1.1 page 45) (i.e. wherein each of the plurality of exponent coding strategies corresponds to different differential coding limits).

10.   Regarding Claim 19, in addition to the elements stated above regarding claim 17, ATSC further discloses that if the spectrum changes little over the 6

blocks in a frame the exponents will be reused for blocks 1 –5 (section 8.28 page

103) (i.e. selecting one of said subsequent exponent sets on the basis of said

first variation and assigning an exponent re-use coding strategy to the selected

exponent set and any exponent sets in said sequence between the first exponent

set and the selected exponent set).

11.   Regarding Claim 20, in addition to the elements stated above regarding

claim 17, ATSC further discloses differential coding in which the exponents for a

channel are differentially coded across frequency and successive exponents are

sent as differential values which must be added to the prior exponent value in

order to form the next absolute value (i.e. determining a second variation of

exponent values between consecutive exponents in said first exponent set) and

the differential exponents are combined into groups in the audio block and the

grouping is done by one of three methods D15, D25 or D45 which are referred to

as exponent strategies (section 7.1.1 page 45) (i.e. wherein the exponent coding

strategy for said first exponent set is selected on the basis of said first and

second variations).

Claim Rejections - 35 USC § 103

12.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for

all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described
> as set forth in section 102 of this title, if the differences between the subject matter sought to
> be patented and the prior art are such that the subject matter as a whole would have been
> obvious at the time the invention was made to a person having ordinary skill in the art to which
> said subject matter pertains. Patentability shall not be negatived by the manner in which the
> invention was made.

13.   Claims 7 – 11, 21 – 25, 31 - 35 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over ATSC in view of Castelaz (U.S. Patent 5,003,490).

14.   Regarding Claims 7, 21 and 22, in addition to the elements stated above regarding claims 2, 17 and 20, ATSC discloses determining the first and second variations but not utilizing neural network processing. Castelaz discloses a neural network signal processor that can receive and analyze raw audio data (col. 2 lines 38 – 47) (i.e. utilizing neural network processing). One of ordinary skill in the art would have been motivated to use Castelaz neural network to determine ATSC's first and second variations in order to effectively measure audio signal features. Using Castelaz neural network to determine these features would be obvious and is merely one of many straightforward implementations that may be used (see Castelaz col. 1 lines 12 – 33 and col. 2 lines 38 – 47).

15.   Regarding Claim 8, in addition to the elements stated above regarding claim 7, Castelaz discloses the neural signal processor comprises a layer of input processing units connected to other layers of similar neurons (col. 2 lines 49 – 50) (i.e. wherein the neural network processing includes first and second neural layers).

16.   Regarding Claims 9, 23 and 35 in addition to the elements stated regarding claims 7, 22 and 31, Castelaz discloses a feature extraction stage that extracts certain features from the signal (col. 4 lines 60 – 61) (i.e. wherein the neural network processing comprises a feature extraction stage in which said sequence of exponent sets is utilized to determine said second variations) each

of the connections between the neurons contain weights (col. 5 lines 38 – 40)

The signal is propagated through the NSP until an output is produced by the

neurons in the output layer. In the "typical" neural net model, the learning

algorithm will attempt to minimize the difference between the actual and the

desired output by effecting a change in the synaptic weights between the

neurons (col. 3 lines 35 – 41) (i.e. a weighted routing stage in which said second

variations are weighted according to predetermined weighting values and routed

to inputs of a first neural layer) next, the input signal will be advanced one step

through the sampling circuit (col. 3 liens 42 – 43) (i.e. a selection stage in which

an output of the first neural layer is selected and an output processing stage),

and a changing set of inputs teaches the net to produce a single output response

(col. 3 lines 25 – 26) (i.e. a coding strategy is assigned to said first exponent set

based on said first variation and the output of said selection stage).

17.   Regarding Claims 10 and 24, in addition to the elements stated above

regarding claims 9 and 23, ATSC further discloses the differential exponents are

combined into groups in the audio block and the grouping is done by one of three

methods D15, D25 or D45 which are referred to as exponent strategies and the

number of exponents in each group depends only on the exponent strategy

(section 7.1.1 page 45) (i.e. wherein a coding strategy is assigned to at least one

subsequent exponent set on the basis of the output of said selection stage).

18.   Regarding Claims 11 and 25, in addition to the elements stated above

regarding claims 10 and 24, ATSC further discloses that if the spectrum changes

little over the 6 blocks in a frame the exponents will be reused for blocks 1 –5

(section 8.28 page 103) (i.e. wherein the coding strategy assigned to the at least

one subsequent exponent set is an exponent re-use strategy).

19.   Regarding Claims 31 and 47, in addition to the elements stated above

regarding claims 1 - 6, ATSC discloses determining the first and second

variations but not utilizing neural network processing. Castelaz discloses a neural

network signal processor that can receive and analyze raw audio data (col. 2

lines 38 – 47) (i.e. utilizing neural network processing). One of ordinary skill in

the art would have been motivated to use Castelaz neural network to determine

ATSC's first and second variations in order to effectively measure audio signal

features. Using Castelaz neural network to determine these features would be

obvious and is merely one of many straightforward implementations that may be

used (see Castelaz col. 1 lines 12 – 33 and col. 2 lines 38 – 47).

20.   Regarding Claim 32, in addition to the elements stated above regarding

claim 31, ATSC further discloses the differential exponents are combined into

groups in the audio block and the grouping is done by one of three methods D15,

D25 or D45 which are referred to as exponent strategies and the number of

exponents in each group depends only on the exponent strategy (section 7.1.1

page 45) (i.e. wherein the exponent coding strategy is assigned from a plurality

of exponent coding strategies having different differential coding limits).

21.   Regarding Claim 33, in addition to the elements stated above regarding

claim 31, ATSC further discloses looking at the variation of exponents over time

and when the variation exceeds a threshold, new exponents will be sent (section

8.2.8 page 103) (i.e. wherein the neural network processor also selects and

assigns an exponent coding strategy to at least one of the subsequent steps).

22.   Regarding Claim 34, in addition to the elements stated above regarding

claim 33, ATSC further discloses that if the spectrum changes little over the 6

blocks in a frame the exponents will be reused for blocks 1 –5 (section 8.28 page

103) (i.e. wherein the exponent coding strategy assigned to the at lest one

subsequent sets is an exponent re-use strategy).

Allowable Subject Matter

13.   Claims 12 – 16, 26 – 30 and 36 - 44 are objected to as being dependent

upon a rejected base claim, but would be allowable if rewritten in independent

form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure. Meyers (U.S. 5,715,372) and Lee (U.S. 6,151,414).

Any inquiry concerning this communication or earlier communications from

the examiner should be directed to Andrew C Flanders whose telephone number

is (703) 305-0381. The examiner can normally be reached on M-F 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the

examiner's supervisor, Sinh Tran can be reached on (703) 305-4040. The fax

phone number for the organization where this application or proceeding is

assigned is 703-872-9306.

Information regarding the status of an application may be obtained from

the Patent Application Information Retrieval (PAIR) system. Status information

for published applications may be obtained from either Private PAIR or Public

PAIR. Status information for unpublished applications is available through

Private PAIR only. For more information about the PAIR system, see http://pair-

direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-

free).

SINH TRAN
SUPERVISORY PATENT EXAMINER

acf